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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MAYO, TARA L	

ART UNIT	PAPER NUMBER
3671	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/715,397	STENDER ET AL.	
	Examiner	Art Unit	
	Tara L. Mayo	3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "integral supports are at a narrower distance from one another in the region of the pressure peaks which occur under load" as set forth in claim 2 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. The prior objection to claims 29 and 30 has been overcome by the response filed 14 April 2005.

4. Claim 23 is objected to because of the following informalities: recitation of a trade name. In claim 23 online 4, delete "styropor" and insert the generic terminology therefor. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 18 through 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "coarse grained" in claim 18 is a relative term which renders the claim indefinite. The term "coarse grained" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claims 23 and 24 contain similar recitations.

The scope of claim 23 is indefinite because Applicant recites cork and foam as members of a group consisting of solid particles. Specifically, it is unclear how materials containing void spaces are considered to be "solid."

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1 through 4, 6, 7, 11, 12, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turck, Jr. (U.S. Patent No. 2,953,195) in view of VanSteenburg (U.S. Patent No. 6,868,569 B2).

Turck, Jr. '195, as seen in Figures 1 and 2, shows a shaped body comprising:

with regard to claim 1,

a supporting layer (lower member 10) shaped with integral supports (15) on its upper side, which are spaced apart from each other via expansion channels (14);

a polyurethane foam layer (12; col. 1, lines 40 through 50) resting on the integral supports of the supporting layer; and

an upper covering (upper member 10) on an upper side of the polyurethane foam layer;

wherein the expansion channels are covered with the polyurethane foam layer; and

wherein the polyurethane foam layer is boded to the supports of the supporting gel layer by an adhesive;

with regard to claim 2,

wherein the integral supports are at a narrower distance from one another in the region of the pressure peaks which occur under load;

with regard to claim 3,

wherein the integral supports are of columnar design;

with regard to claim 4,

wherein said expansion channels are partially filled with integral projections (in a loaded state) protruding from said lower side of the polyurethane foam layer which enter in to the expansion channels of the supporting layer;

with regard to claim 6,

wherein the foam layer partially laterally encloses the supporting gel layer;

with regard to claim 7,

wherein the supporting layer is bonded to the polyurethane foam layer (col. 2, lines 41 through 46); and

with regard to claims 27 and 28,

wherein the shaped body forms at least part of a seat cushion.

Turck, Jr. '195 fails to teach:

with regard to claim 1,

the lower supporting layer comprising polyurethane polymer gel;

with regard to claim 11,

the chemical structure of the polyurethane polymer gel consisting of long polymer threads and only a few linkages without added plasticizers being used;

with regard to claim 12,

wherein the chemical structure of the polyurethane polymer gel is undercrosslinked polyurethane based on polyols and polyisocyanates or polyethers and polyisocyanates.

VanSteenburg '569, as seen in Figures 6 through 8, shows a person support mattress comprising an open-cell foam core (22; col. 6, line 51) and expressly teach the equivalence of foam, gel, air and vacuum beads for forming the core.

With regard to claim 1, it would have been obvious to one having ordinary skill in the art of supports at the time the invention was made to modify the device shown by

Turck, Jr. '195 such that the lower supporting would comprise gel instead of foam in view of the teaching of equivalence by VanSteenburg '569.

With regard to claim 11, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polyurethane gel disclosed by the combination of Turck, Jr. '195 and VanSteenburg '569 of the long chain type having few linkages without added plasticizers. The motivation would have been to produce a gel substance with high flexibility at room temperature (very low hardness) for comfort.

With regard to claim 12, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polyurethane gel disclosed by the combination of Turck, Jr. '195 and VanSteenburg '569 of the under-cross-linked type based on polyols and polyisocyanates or polyethers and polyisocyanates. The motivation would have been to produce a soft to tacky gel substance with high flexibility at room temperature (very low hardness).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turck, Jr. (U.S. Patent No. 2,953,195) in view of VanSteenburg (U.S. Patent No. 6,868,569 B2) as applied to claim 1 above, and further in view of Himmelsbach et al. (U.S. Patent No. 6,630,227 B1).

Turck, Jr. '195 in view of VanSteenburg '569 discloses all of the features of the claimed invention with the exception(s) of:

with regard to claim 5,

the upper covering being a spacer knit consisting of two textile surfaces connected to each other spacer threads.

Himmelsbach et al. '227 disclose a shaped article and expressly teach the advantageous use of spacer knit fabrics as having high long-term resilience because of the rigid connecting spacer threads (col. 2, lines 59 through 63).

With regard to claim 5, it would have been obvious to one having ordinary skill in the art of cushions at the time the invention was made to modify the device shown by the combination of Turck, Jr. '195 and VanSteenburg '569 by adding a spacer knit consisting of two textile surfaces to the upper member (10) as taught to be advantageous by Himmelsbach et al. '227. The motivation would have been to impart long-term resilience to the upper covering.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turck, Jr. (U.S. Patent No. 2,953,195) in view of VanSteenburg (U.S. Patent No. 6,868,569 B2) as applied to claim 4 above, and further in view of Purdy et al. (U.S. Patent No. 5,680,662 A).

Turck, Jr. '195 in view of VanSteenburg '569 discloses all of the features of the claimed invention with the exception(s) of:

with regard to claim 9,

the integral projections extending as far as a bottom of the expansion channels; and

with regard to claim 10,

the projections being supported on the bottom of the expansion channels.

Purdy et al. '662, as seen in Figure 4, show a mattress (10) comprising a series of alternating gel-filled lower tunnels (32) and upper loops (34) to prevent "bottoming out" (col. 1, lines 34 through 44) and to better normalize and distribute the weight of the patient's body and to substantially reduce the tangential forces bearing on the skin of the user (col. 3, lines 60 through 67), wherein the integral projections of the upper layer extend as far as the bottom of the expansion channels formed between the tunnels of the lower layer, and wherein the projections of the upper layer are supported on the bottom of the expansion channels.

With regard to claims 9 and 10, it would have been obvious to one having ordinary skill in the art of cushions at the time of invention to modify the device shown by the combination of Turck, Jr. '195 in view of VanSteenburg '569 such that the polyurethane foam would have integral projections on its lower side to enter the expansion channels of the lower supporting layer as taught by Purdy et al. '662. The motivation would have been to better normalize and distribute the weight of a user throughout the device.

12. Claims 13 through 17, 27, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turck, Jr. (U.S. Patent No. 2,953,195) in view of VanSteenburg (U.S. Patent No. 6,868,569 B2) as applied to claim 12 above, and further in view of Burgdörfer et al. (4,456,642).

The combination of Turck, Jr.'195 and VanSteenburg '569 fails to teach:

with regard to claims 13, 29 and 30,

the gel compounds being produced from materials having an isocyanate functionality of the polyol component of at least 7.5;

with regard to claim 14,

the polyol component for producing the gel consisting of a mixture of (a) one or more polyols having hydroxyl numbers under 112, and (b) one or more polyols having hydroxyl numbers in the range from 112 to 600, the weight ratio of component (a) to component (b) being between 90:10 and 10:90, the characteristic isocyanate number of the reaction mixture lying in the range of from 15 to 60, and the product from the isocyanate functionality and functionality of the polyol component being at least 6.

with regard to claim 15,

the polyol component for producing the gel consisting of one or more polyols having a molecular weight of between 1000 and 12,000 and an OH number of between 20 and 112, the product of the functionalities of the polyurethane-forming components being at least 5 and the characteristic isocyanate number being between 15 and 60;

with regard to claim 16,

the isocyanides used for ht production of the gels being those of the formula Q (NCO) in which N is 2 to 4 and Q is an aliphatic hydrocarbon radical having 8 to 18 C

atoms, a cycloaliphatic hydrocarbon radical having 4 to 15 C atoms, an aromatic hydrocarbon radical having 6 to 15 C atoms or an araliphatic hydrocarbon radical having 8 to 15 C atoms; and

with regard to claim 17,

the polyurethane being produced with isocyanates in a pure form or with urethanized, allophanisized, biurethisized or functionally correspondingly modified isocyanates.

Burgdörfer et al. '642 disclose gel compositions for use in cushions (col. 1, lines 6 through 10; col. 2, lines 11 through 29).

With regard to claim 13, see col. 3, lines 55 through 59.

With regard to claim 14, see col. 2, line 63 through col. 3, line 39.

With regard to claim 15, see col. 2, line 63 through col. 3, line 39.

With regard to claim 16, see. col. 7, lines 19 through 33.

With regard to claim 17, col. 11, lines 36 through 44.

With regard to claims 13 through 17, it would have been obvious to one having ordinary skill in the art of synthetic resins at the time the invention was made to make the polyurethane gel composition of the device shown by the combination of Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 as taught by Burgdörfer et al. '642. The motivation would have been to produce a gel having long-term stability with variable mechanical properties.

13. Claims 18 through 22 and 27are rejected under 35 U.S.C. 103(a) as being unpatentable over Turck, Jr. (U.S. Patent No. 2,953,195) in view of VanSteenburg (U.S. Patent No. 6,868,569 B2) and Swan, Jr. (U.S. Patent No. 4,255,202).

Turck, Jr. '195, as seen in Figures 1 and 2, shows a shaped body comprising: with regard to claim 18,

a first polyurethane foam layer having on a first side intergral supports which are spaced apart from one another via expansion channels;

a second polyurethane foam layer positioned over said first side of said polyurethane foam layer; and

a covering positioned over said second polyurethane layer; and

with regard to claim 27,

wherein said shaped body forms at least part of a seat cushion.

Turck, Jr. '195 fails to teach:

the first polyurethane layer being a gel formed from an undercrosslinked polyurethane based on polyols and polyisocyanates or polyethers and polyisocyanates;

the first polyurethane layer containing elastic hollow microbeads or coarse-grained solid particles as filler;

the hollow microbeads being made from polymeric material;

the hollow microbeads having a diameter of 10μm to 150μm;

the content of the hollow microbeads in the gel material being 0.1 to 10% by weight.

VanSteenburg '569, as seen in Figures 6 through 8, shows a person support mattress comprising an open-cell foam core (22; col. 6, line 51) and expressly teach the equivalence of foam, gel, air and vacuum beads for forming the core.

Swan, Jr. '202 discloses a composition suitable for use in a shaped body including a foam-like cushioning material (col. 2, lines 1 through 11), the cushioning material comprising elastic hollow microbeads made from polymeric material coated with a covering layer of an organic material, wherein the hollow microbeads have a diameter of 10μm to 150 μm and are used to impart or control resiliency (col. 9, lin3 63 through col. 10, line 7; col. 10 lines 43 through 57; and col. 14, lines 28 through 30).

With regard to claims 18 through 21, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device shown by Turck, Jr. 'with the addition of elastic, hollow microbeads as taught by Swan, Jr. '202 for controlling resiliency.

With regard to claim 18, it would have been obvious to one having ordinary skill in the art of supports at the time the invention was made to modify the device shown by Turck, Jr. '195 and Swan Jr. '202 such that the lower supporting would comprise gel instead of foam in view of the teaching of equivalence by VanSteenburg '569.

With regard to claim 18, Turck, Jr. '195 and VanSteenburg '569 are silent with respect to the type of gel used. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polyurethane gel disclosed by the combination of Turck, Jr. '195 and VanSteenburg '569 of the under-cross-linked type based on polyols and polyisocyanates or polyethers and polyisocyanates since it is well

known the same will produce a soft to tacky gel substance with high flexibility at room temperature (very low hardness).

With regard to claim 22, it would have been obvious to one having ordinary skill in the art through routine experimentation and optimization to determine the optimal amount of microbeads to add to the gel material disclosed by the combination of Turck, Jr. '195, VanSteenburg '569 and Swan, Jr. '202. The motivation would have been to effect optimal resiliency in the shaped body as desired.

14. Claims 18, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turck, Jr. (U.S. Patent No. 2,953,195) in view of VanSteenburg (U.S. Patent No. 6,868,569 B2), Pearce (U.S. Patent No. 5,749,111) and Ehrlich, Jr. (U.S. Patent No. 4,510,702).

Turck, Jr. '195, as seen in Figures 1 and 2, shows a shaped body comprising: with regard to claim 18,

a first polyurethane foam layer having on a first side intergral supports which are spaced apart from one another via expansion channels;

a second polyurethane foam layer positioned over said first side of said polyurethane foam layer; and

a covering positioned over said second polyurethane layer; and

with regard to claim 27,

wherein said shaped body forms at least part of a seat cushion.

Turck, Jr. '195 fails to teach:

the first polyurethane layer being a gel formed from an undercrosslinked polyurethane based on polyols and polyisocyanates or polyethers and polyisocyanates;

the first polyurethane layer containing elastic hollow microbeads or coarse-grained solid particles as filler;

the coarse-grained solid particles being selected from the group consisting of small pieces of cork, cork powder, small pieces of wood, wood shavings, foam flakes, polystyrene, textile fibers or pieces of textile;

the diameter of the solid particles being between 0.1 and 15 mm.

VanSteenburg '569, as seen in Figures 6 through 8, shows a person support mattress comprising an open-cell foam core (22; col. 6, line 51) and expressly teach the equivalence of foam, gel, air and vacuum beads for forming the core.

Pearce '111 claims a cushion for from a gelatinous material and further including wood (Claim 105).

Ehrlich, Jr. '702 teaches the advantages of using coarse-grained wood and cork particles (col. 2. lines 37 through 57).

With regard to claim 18, it would have been obvious to one having ordinary skill in the art of supports at the time the invention was made to modify the device shown by Turck, Jr. '195 such that the lower supporting would comprise gel instead of foam in view of the teaching of equivalence by VanSteenburg '569.

With regard to claim 18, Turck, Jr. '195 and VanSteenburg '569 are silent with respect to the type of gel used. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polyurethane gel disclosed by the combination of Turck, Jr. '195 and VanSteenburg '569 of the under-cross-linked type based on polyols and polyisocyanates or polyethers and polyisocyanates since it is well known the same will produce a soft to tacky gel substance with high flexibility at room temperature (very low hardness).

With regard to claim 23, it would have been obvious to one having ordinary skill in the art at the time invention was made to modify the device shown by the combination of Turck, Jr. '195 and VanSteenburg '569 such that the gel would further include wood particles as taught by Pearce '111 and Ehrlich, Jr. '702. The motivation would have been to reinforce the body and conserve the amount of gel material required to form the body.

With regard to claim 24, it would have been obvious to one having ordinary skill in the art through routine experimentation and optimization to determine the optimal size of coarse-grained particle to add to the gel material disclosed by the combination of Turck, Jr. '195, VanSteenburg '569 and Pearce '111. The motivation would have been to effect optimal resiliency in the shaped body as desired.

Allowable Subject Matter

15. Claims 25 and 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

16. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara L. Mayo whose telephone number is 571-272-6992. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 571-272-6998. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tlm
04 July 2005

Thomas B. Will
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